

### **DETAILED ACTION**

This communication is a first Office Action Non-Final rejection on the merits. Claims 11-19, as originally filed, are currently pending and have been considered below. It is noted that claims 1-10 have been canceled.

#### ***Information Disclosure Statement***

1. The listing of references in the Search Report is not considered to be an information disclosure statement (IDS) complying with 37 CFR 1.98. 37 CFR 1.98(a)(2) requires a legible copy of: (1) each foreign patent; (2) each publication or that portion which caused it to be listed; (3) for each cited pending U.S. application, the application specification including claims, and any drawing of the application, or that portion of the application which caused it to be listed including any claims directed to that portion, unless the cited pending U.S. application is stored in the Image File Wrapper (IFW) system; and (4) all other information, or that portion which caused it to be listed. In addition, each IDS must include a list of all patents, publications, applications, or other information submitted for consideration by the Office (see 37 CFR 1.98(a)(1) and (b)), and MPEP § 609.04(a), subsection I. states, "the list ... must be submitted on a separate paper." Therefore, the references cited in the Search Report have not been considered. Applicant is advised that the date of submission of any item of information or any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the IDS, including all "statement" requirements of 37 CFR 1.97(e). See MPEP § 609.05(a).

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

***Drawings***

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "42" in figure 4 has been used to designate both edges of the saw teeth, however, the specification discloses the saw teeth are reference characters 41 and 42 in figure 4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

4. Claim 13 is objected to because of the following informalities: In line 5, the recitation "the saw teeth (23) of the, in the longitudinal direction, left half (26)...etc" is unclear because the sentence is incomplete.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 18, the term "star-shaped" is not defined by the claim and the specification does not provide a standard for ascertaining the metes and bounds of the limitation.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Kronenberg (6,862,859).

**Regarding claim 11**, Kronenberg teaches a connecting element (1, figure 1) capable of connecting two end regions of box-shaped hollow profiles (24, figure 1), in particular hollow spacer profiles in multiple glazings, with a base plate (5, figures 1 and 5) and side walls (6, figures 1 and 4) with resilient retainer elements (12-15, figure 4), characterized in that the side walls (6, figures 1 and 4) are profiled in cross section, the cross sectional profile being multiply curved, in a first region (as illustrated in figure 4, the transition from base plate 5 to sidewall 6 is a curved section), adjoining the base plate (5), of each side wall (6) the cross sectional profile of this region (as illustrated in figure 4) is developed such that it is curved outwardly and the side wall (6) is capable of forming a spring element which is deflectable in a direction approximately parallel to the face (opposite side of base plate 5, as illustrated in figure 4) and at right angles to the longitudinal axis (the curved portion is an approximate right angle to the base plate, as illustrated in figure 4) of the base plate (5) and in a second region (region of resilient retainer elements 12-15, figure 4) of each side wall (6) which forms the free end region (free end region is at the end of retainer elements 12-15, figure 4) of the side wall (6) the cross sectional profile of this region (retainer elements 12-15) is developed such that it is curved inwardly in the opposite direction (as illustrated in figure 4) and this region (12-15) of the side wall (6) is capable of forming a further spring element, which is capable of deflecting at least in a direction approximately at right angles to the face (top of base plate 5) and to the longitudinal axis of the base plate (5) and

the free ends (ends of retainer elements 12-15) of the second regions (12-15) of the side walls (6) are directed upwardly away from the base plate (5) (as illustrated in figure 4).

**Regarding claim 12**, Kronenberg teaches the first regions (as illustrated in figure 4, the transition from base plate 5 to sidewall 6 is a curved section) of the two side walls (of hollow sections 24, as illustrated in figure 4) of the connecting element (1), which are curved outwardly and against the side walls (of hollow sections 24, as illustrated in figure 4) of the hollow profile (24), in the installed state are resiliently in contact with a subregion (as illustrated in figures 1, 2, and 4, the bent region of the sidewall 6 is in contact with the sidewall of the hollow section 24 and described in column 3 lines 44-45 and column 4 lines 60-63 which states the sidewalls may have the same arrangement with the profile as retaining elements 12-14, therefore meaning the sidewalls 6 are in contact with the sidewalls of the hollow section 24) on these side walls of the hollow profile (24).

**Regarding claim 13**, Kronenberg teaches the second regions (retainer elements 12-15) of the two side walls (6) comprise in the longitudinal direction of the connecting element (1) several recesses (cut-outs 19) open toward the free end region and disposed between these recesses (cut-outs 19) saw teeth (as illustrated in figures 1-3), the saw teeth of the, in the longitudinal direction, left half of the connecting element (1) and the saw teeth of the right half of the connecting element (1) being directed opposite one another (figure 1 shows the saw teeth of the two sides of the connecting element are disposed in opposite directions from one another).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kronenberg (6,862,859) in view of Kronenberg (6,764,247).

**Regarding claim 14**, Kronenberg '859 teaches the connecting element (1) is comprised of a material from the group of high-grade steels (column 5 lines 5-8).

However, Kronenberg '859 fails to explicitly disclose the thickness of the material is maximally 0.4 mm.

Kronenberg '247 teaches a plug in connector for hollow glass pane structures wherein sections of the structure are made of steel material with a thickness of 0.2 mm (thickness of 0.2 mm is used as disclosed in column 11 lines 32-34, which is less than the maximum allowed thickness as claimed in the instant application).

Therefore, from the teaching of Kronenberg '247, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the material thickness used in Kronenberg '859 with the material thickness of 0.2 mm as disclosed in Kronenberg '247 in order to provide an appropriate material thickness with will give the structure the necessary strength and weight characteristics.

**Regarding claim 15**, Kronenberg '859 teaches reinforcement elements are included in the center of the base plate (5) of the connector profile (via the elastic middle stop as illustrated in figure 10).

However, Kronenberg '859 fails to explicitly disclose in the center of the base plate (4) a reinforcement rib (27) is disposed at least over a portion of the length of the connecting element (1).

Kronenberg '247 teaches a plug in connector for hollow glass pane structures (abstract) having a reinforcement rib (222) disposed in the center of the base plate along a portion of the connecting element (as illustrated in figure 32).

Therefore, from the teaching of Kronenberg '247, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the base plate of Kronenberg '859 to include the rib formation as taught by Kronenberg '247 in order to provide additional structural support to the connecting member.

**Regarding claim 16**, Kronenberg '859 teaches in the installed state the base plate (5) of the connecting element (1) is in contact on an inner broadside of the hollow profiles (24) (figure 4 shows the base plate 5 contacts the inner side of the hollow profile) and the free ends (via retainer elements 12-15) of the second region (12-15) of each side wall (6) of the connecting element (1) are resiliently in contact with the sidewalls of the hollow profiles (24).

However, Kronenberg '859 fails to explicitly disclose the ends of the retainer elements are in contact with the opposite broadside of the hollow profile.

Kronenberg '247 teaches the ends of the retainer elements (flanges 217, 218) are in contact with the opposite broadside of the hollow profile (as illustrated in figure 32).

Therefore, from the teaching of Kronenberg '247, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the retainer elements of Kronenberg '859 which contact the side walls of the hollow profile with the retaining flanges of Kronenberg '247 which contact the upper broad section of the hollow profile in order to provide a stronger structure with less probability of slippage between the connecting element and the hollow profile.

**Regarding claim 17,** Kronenberg '859 teaches the second region (as illustrated in figure 4, the transition from base plate 5 to sidewall 6 is a curved section) of each side wall (6) are disposed outwardly directed retainer claws (via retaining elements 12-15, as illustrated in figure 4).

However, Kronenberg '859 fails to explicitly disclose retainer claws are located on the first region.

Kronenberg '247 teaches a plug in connector for hollow glass pane structures which has retainer claws in the first region (as illustrated in figures 11 and 12, retainer claws are depicted by stops 117 and 118 which by definition are claws).

Therefore, from the teaching of Kronenberg '247, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first curved region of the connecting element of Kronenberg '859 to include the retaining



stops as taught by Kronenberg '247 in order to provide additional protection from the connecting element slipping out of the hollow connector.

11. Claim 18, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Kronenberg (6,862,859) in view of Kronenberg (6,764,247) and further in view of Johnson (4,193,245).

**Regarding claim 18**, Kronenberg '859 teaches retainer claws (12-15) in the side wall (6), which are bent from the inside to the outside (the retainer claws are spring biased toward the outside in order to engage the sidewall of hollow member 24) and whose flaps (retaining elements 12-15 can be considered flaps) project beyond the outer face of the side wall (6).

However, Kronenberg '859 fails to explicitly disclose star-shaped breakthroughs in the sidewall which are pressed from the inside to the outside.

Kronenberg '247 teaches a plug in connector for hollow glass pane structures having retainer claws comprised of star-shaped (125) breakthroughs (as illustrated in figures 11 and 12, retainer claws are depicted by stops 117 and 118; the round shapes of the stops are considered to be "star-shaped" because stars are spherical objects) in the side wall (side webs 111) which are pressed from the inside to the outside (as illustrated in figures 11 and 12, stops 117 and 118 project from the inside of the plug in connector to the outside) and whose flaps (the examiner construes the projections can be considered flaps) project beyond the outer face of the side wall (6, as illustrated in figures 11 and 12).

Therefore, from the teaching of Kronenberg '247, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the sidewall of Kronenberg '859 to include the breakthrough projections with a round shape engaging the hollow body as taught by Kronenberg '247 in order to provide additional protection from the connecting element slipping out of the hollow connector.

Further, Johnson teaches interlocking portions of a door frame wherein a first web portion 24 connects to a second web portion 20 wherein the second web portion comprises a breakthrough (detent 30) which is determined by the examiner to be star-shaped.

Therefore, from the teaching of Johnson it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the round breakthrough of Kronenberg '247 with the star-shaped breakthrough of Johnson in order to provide additional protection from the connecting element slipping out of the hollow connector.

Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the round-shaped breakthrough to have a star shape or any other shape since it has been held that mere changes in shape which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed subject matter is significant is not patentable subject matter (*In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966)). Further, the applicant's specification discloses "such breakthroughs can also have a different

shape..." which additionally deems the star-shape to be a limitation based merely on design choice.

12. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kronenberg (6,862,859) in view of Peterson (5,048,997).

**Regarding claim 19**, Kronenberg teaches recesses in the second region of the side walls 6 (as illustrated in figures 1-3).

However, Kronenberg fails to explicitly disclose the depth of the recesses in the side walls is greater than one half of the total height of the side wall.

Peterson teaches a connecting piece for spacer frames in insulated glass panels which have recesses in their sidewalls (20, 22) greater than one half of the total height of the sidewall (as illustrated in figures 1-3, sidewall recesses are greater than one half the total height of the sidewall).

Therefore, from the teaching of Peterson, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the sidewall heights of Kronenberg with the heights disclosed in Peterson in order to reduce the overall weight of the connecting element and reduce the amount of material needed to lower manufacturing costs.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Berdan (4,296,587) teaches a spacer for double glazed window with a curved connecting element contacting all sides of the hollow member.

Larsen (5,439,716) teaches a multi-pane glass support structure having flexible connecting portions and a rib in the center of the base plate.

Berdan (4,850,175) teaches a spacer for double glazed window with a flexible curved connecting element contacting all sides of the hollow member.

Kronenberg (5,560,731) teaches a plug in connector for hollow sections having opposing sawteeth.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON HOLLOWAY whose telephone number is (571) 270-5786. The examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Glessner can be reached on 571-272-6843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Page 14

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